

saccharides having a degree of glucose polymerization of at least 3;

(2) Molecular weight

About 69,000-79,000 daltons on sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE);

(3) Isoelectric point (pI)

About 5.4-6.4 on isoelectrophoresis;

(4) Thermostability

Substantially not inactivated even when incubated in an aqueous solution (pH 7.0) at 85°C for 60 min.; and

(5) Amino acid sequence

An amino acid sequence which is not identical to SEQ ID NO:1 but which has physicochemical properties of (1) to (4) inherent to a thermostable enzyme of SEQ ID NO:1, said amino acid sequence comprising the sequence of one or more fragments of SEQ ID NO:3 and SEQ ID NO:4.

REMARKS

The Office Action has been carefully reviewed. No claims are allowed. Claim 1 presently appear in this application and define patentable subject matter warranting their allowance. Reconsideration and allowance are hereby respectfully solicited.

Claim 1 has been rejected under the judicially created doctrine of obviousness-type double patenting as being

unpatentable over claim 1 of U.S. Patent No. 5,976,856.

Applicants request that this rejection be held in abeyance until such time that there is indication of an otherwise allowable claim.

Claim 1 has been rejected under 35 U.S.C. §112, second paragraph, as being indefinite. This rejection is obviated by the amendment to claim 1.

Claim 1 has been rejected under 35 U.S.C. §112, first paragraph, because the examiner states that the specification, while being enabling for the enzyme of SEQ ID NO:1 or enzymes encoded by genes which will hybridize to SEQ ID NO:2 under specific conditions, does not reasonably provide enablement for any enzyme with the claimed properties. This rejection is respectfully traversed.

Applicants submit that the purified recombinant thermostable enzyme of claim 1 is characterized by the five physicochemical properties as recited in claim 1. Among the five physicochemical properties, "action" is the most characteristic one. Since such "action" as recited in claim 1 is very unique, it is possible for a person of skill in the art to screen out various polypeptides by seeing if they have this specific "action". After that, the physicochemical properties (2)-(5) as recited in claim 1 lead a person of skill in the art to the claimed enzyme. The amino acid sequence of (5) is an index which determines the claimed enzyme at the DNA level. A skilled person can obtain the claimed enzyme easily according to the steps as mentioned above. Furthermore, in order to obtain the claimed

enzyme using recombinant technique, it would be easy for a skilled person, according to the guidance disclosed in Experiment 3 at pages 19-24 of the specification, to first prepare polypeptides having the amino acid sequence as defined in (5) of claim 1 and then to check on physicochemical properties as defined in (1) to (4) so as to obtain the claimed enzyme. It is therefore believed that the specification does reasonably provide enablement for an enzyme with the recited properties.

Reconsideration and withdrawal of the rejection are therefore respectfully requested.

In view of the above, the claims define patentable subject matter warranting their allowance. Favorable consideration and early allowance are earnestly urged.

Respectfully submitted,

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**"VERSION WITH MARKINGS TO SHOW CHANGES MADE"**

1. A purified recombinant thermostable enzyme having the following physicochemical properties:

(1) Action

Forming non-reducing saccharides having a trehalose structure as an end unit and having a degree of glucose polymerization of at least 3 from maltotetraose or reducing amylaceous saccharides having a degree of glucose polymerization of at least 3;

(2) Molecular Weight

About 69,000-79,000 daltons on sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE);

(3) Isoelectric point (pI)

About 5.4-6.4 on isoelectrophoresis;

(4) Thermostability

Substantially not inactivated even when incubated in an aqueous solution (pH 7.0) at 85°C for 60 min.; and

(5) Amino acid sequence

An amino acid sequence which is not identical to SEQ ID NO:1 but ~~is a functional equivalent thereof, and which contains one or more amino acid residues selected partially from which has physicochemical properties of (1) to (4) inherent to a thermostable enzyme of SEQ ID NO:1, said~~

amino acid sequence comprising the sequence of one  
or more fragments of SEQ ID NO:3 and SEQ ID NO:4